

For the convenience of the Examiner, all pending claims are presented below. No amendments are made.

1. **(Previously Amended)** A method for forming a conductive pattern for a semiconductor device, comprising:

 patterning a mask layer outwardly from a conductive layer of the semiconductor device, the patterning defining portions of the conductive layer where vias through the conductive layer are desired;

 exposing the semiconductor device to a plasma using a plasma deposition reactor, the plasma converting the unmasked portions of the conductive layer into a compound;

 exposing the semiconductor device to a treatment process, the treatment process selectively removing the compound; and

 wherein exposing the semiconductor device to a treatment process comprises:

 exposing the semiconductor device to a substantially inert atmosphere; and

 heating the semiconductor device to between 300 and 800 degrees Celsius while the semiconductor device is exposed to the substantially inert atmosphere to remove the compound.

2. **(Original)** The method of Claim 1, wherein the conductive layer comprises a copper material.

3. **(Original)** The method of Claim 1, further comprising removing the mask layer from the semiconductor device.

4. **(Original)** The method of Claim 3, wherein removing the mask layer comprises removing the mask layer after removing the compound.

5. **(Original)** The method of Claim 3, wherein removing the mask layer comprises removing the mask layer before removing the compound.

6. **(Previously Canceled)** The method of Claim 1, wherein exposing the semiconductor device to a treatment process comprises:
- exposing the semiconductor device to a substantially inert atmosphere; and
 - heating the semiconductor device to between 300 and 800 degrees Celsius to remove the compound.
7. **(Original)** The method of Claim 1, further comprising providing a barrier layer between the conductive material and a substrate of the semiconductor device.
8. **(Original)** The method of Claim 1, wherein the conductive material comprises a copper material, and wherein exposing the semiconductor device to a plasma comprises exposing the semiconductor device to a chlorine-containing gas.
9. **(Original)** The method of Claim 8, wherein the compound comprises a copper chloride material, and wherein exposing the semiconductor device to a treatment process comprises exposing the semiconductor device to a hydrogen chloride solution to remove the copper chloride material.
10. **(Original)** The method of Claim 1, wherein the mask layer comprises a photoresist material.
11. **(Previously Amended)** A method for forming a conductive pattern for an electronic device, comprising:
- forming a conductive layer outwardly from a substrate of the electronic device;
 - patterning a mask layer outwardly from the conductive layer, the patterning defining portions of the conductive layer where vias through the conductive layer are desired;
 - exposing the electronic device to a plasma using a plasma deposition reactor and at least one other gas selected from the group of inert gases and nitrogen, the plasma converting the unmasked portions of the conductive layer into a compound and the at least one other gas enhancing the conversion into the compound;

in a separate process from forming the compound, exposing the electronic device to a treatment process to selectively remove the compound;

removing the mask layer from the masked portions of the conductive layer; and

wherein exposing the electronic device to a treatment process comprises:

exposing the electronic device to a substantially inert atmosphere; and

heating the electronic device to between 300 and 800 degrees Celsius while the electronic device is exposed to the substantially inert atmosphere to remove the compound.

12. **(Original)** The method of Claim 11, wherein removing the mask layer comprises removing the mask layer before removing the compound.

13. **(Original)** The method of Claim 11, wherein forming a conductive layer comprises forming a copper layer outwardly from the substrate.

14. **(Original)** The method of Claim 11, wherein the plasma comprises a gas having an element selected from the halogen group of elements.

15. **(Original)** The method of Claim 11, further comprising providing a barrier layer between the conductive layer and the substrate of the electronic device.

16. **(Original)** The method of Claim 11, wherein exposing the electronic device to a plasma comprises controlling the exposure of the electronic device to the plasma to form a substantially perpendicular interface between the masked conductive material and the compound.

17. **(Original)** The method of Claim 11, wherein patterning a mask layer comprises patterning a photoresist layer outwardly from the conductive layer.

18. **(Original)** A method for forming a conductive pattern for an electronic device, comprising:

masking a portion of a conductive layer of the electronic device, the masked portion of the conductive layer defining the conductive pattern;

exposing the electronic device to a plasma and at least one other gas selected from the group of inert gases and nitrogen, the plasma converting an unmasked portion of the conductive layer into a compound and the at least one other gas enhancing the conversion into the compound; and

in a separate process from forming the compound, exposing the electronic device to a treatment process, the treatment process selectively removing the compound.

19. **(Original)** The method of Claim 18, wherein masking a portion of a conductive layer comprises depositing a photoresist layer outwardly from a portion of the conductive layer.

20. **(Original)** The method of Claim 19, further comprising removing the photoresist layer after removing the compound.

21. **(Original)** The method of Claim 19, further comprising removing the photoresist layer before removing the compound.

22. **(Original)** The method of Claim 18, wherein exposing the electronic device to a plasma comprises exposing the electronic device to a plasma, the plasma comprising a gas having an element selected from the halogen group of elements.

23. **(Original)** The method of Claim 22, wherein the plasma comprises a chlorine-containing gas.

24. **(Original)** The method of Claim 22, wherein the plasma comprises a bromine-containing gas.

25. **(Original)** The method of Claim 22, wherein the plasma comprises a fluorine-containing gas.

26. **(Original)** The method of Claim 22, wherein the plasma comprises an iodine-containing gas.

27. **(Original)** The method of Claim 18, wherein exposing the electronic device to a plasma comprises controlling the exposure of the electronic device to the plasma to form a substantially perpendicular interface between the masked conductive material and the compound.

28. **(Original)** The method of Claim 18, wherein the conductive layer comprises a copper material.

29. **(Original)** The method of Claim 28, wherein exposing the electronic device comprises exposing the electronic device to a plasma, the plasma comprising a chlorine-containing gas, the plasma converting the unmasked portion of the conductive layer to copper chloride.

30. **(Original)** The method of Claim 29, wherein exposing the electronic device to a treatment process comprises exposing the electronic device to a hydrogen chloride solution to remove the copper chloride.

31. **(Original)** A method for forming a conductive pattern for a device, comprising:

 patterning a mask layer outwardly from a conductive layer of the device, the patterning defining portions of the conductive layer where vias through the conductive layer are desired;

 exposing, by a plasma deposition reactor, the device to a plasma, the plasma converting the unmasked portions of the conductive layer into a compound; and

 exposing the device to a treatment process, the treatment process selectively removing the compound.

32. **(Previously Amended)** A method for forming a conductive pattern for a device, comprising:

 patterning a mask layer outwardly from a conductive layer of the device, the patterning defining portions of the conductive layer where vias through the conductive layer are desired;

 exposing the device to a plasma having an energy level of approximately 30 volts or below, the plasma converting the unmasked portions of the conductive layer into a compound; and

 exposing the device to a treatment process, the treatment process selectively removing the compound.